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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,247	01/09/2002	Takao Ohno	Q68006	1966

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EXAMINER

VO, HAI

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 02/26/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/030,247

Applicant(s)

OHNO ET AL.

Examiner

Hai Vo

Art Unit

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 8-24 and 27-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 and 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-7, 25 and 26, drawn to a porous film.

Group II, claim(s) 8-24, and 32 drawn to a process of making a porous film.

Group III, claim(s) 27-31, 33 and 34 drawn to a laminate.

2. The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: All the groups are directed to an article and a process useful in the general field of the battery separator. Group I has a special technical feature directed to a porous film having a gas permeability of 0.2 to 1000 ml/sec not required for Groups II-III. Group II has a special technical feature directed to the casting and coagulating process not required for Groups I and III. Group III has a special technical feature directed to a heat-melting thermoplastic polymer porous layer not required for Groups I-II.

3. During a telephone conversation with Bruce E. Kramer on 02/13/2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-7, 25 and 26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-24 and 27-34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 25 and 26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tamura et al (US 4,539,393). Tamura is using the same materials and the same process to make a porous polymetaphenylene isophthalamide film as Applicants, i.e. casting a dope prepared by dissolving a polymetaphenylene isophthalamide in an N-methyl-2-pyrrolidone solvent and coagulating it in a bath comprising N-methyl-2-pyrrolidone solvent and water. After coagulating, the film is stretched to form the pores. Tamura

does disclose the moisture absorption deformation from complete drying of the porous film (tables 1 and 2). It is an alternative measurement of the gas permeability as described in the claims. The porous film has a Young's modulus within the range set out in the claims (table 1). Since the porous film of the present invention is produced from the same materials and the same process disclosed by Tamura, it is the examiner's position that the gas permeability, porosity and cross-sectional pore laminar coefficient would be inherently present. Note In re Best 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made under 35 USC 102. It is the examiner's position that Tamura anticipates or strongly suggests the claimed subject matter.

With regard to claims 25 and 26, Tamura is silent as the use of the porous film as a battery separator. The recitation "a battery separator" has not given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. **Kropa v. Robie**, 88 USPQ 478 (CCPA 1951).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al (US 4,539,393). Tamura discloses a porous film being self-supporting (column 15, line 48 et seq.). Tamura is silent as to a film thickness. However, such a variable would have been recognized by one skilled in the art to obtain the desired transparency and moisture absorption dimensional stability of the film. As such, in

the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the porous film having a thickness instantly claimed since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Claims 5-7 ~~are~~ rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al (US 4,539,393) in view of Tsutsumi et al (US 5,571,875). Tamura discloses a porous polymetaphenylene isophthalamide film having a Young modulus of 600 Km (table 1). Tamura is using the same materials and the same process to make a porous polymetaphenylene isophthalamide film as Applicants, i.e. casting a dope prepared by dissolving a polymetaphenylene isophthalamide in an N-methyl-2-pyrrolidone solvent and coagulating it in a bath comprising N-methyl-2-pyrrolidone solvent and water. After coagulating, the film is stretched to form the pores. It is the examiner's position that the film porosity would be inherently present. Tamura is silent as to an inorganic whisker as a filler. Tsutsumi teaches an inorganic whisker being used as a filler in the matrix of the aromatic polyamide resin composition (column 20, lines 31-40, column 22, lines 25-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an inorganic whisker in the porous film motivated by the desire to improve mechanical properties and dimensional stability of the porous film (Tsutsumi, column 3, lines 33-35).

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With regard to claim 6, Tsutsumi teaches the weight ratio of the polymetaphenylene isophthalamide to the whisker being 1: 2 to 20:1 (column 22, line 41). However, such a variable would have been recognized by one skilled in the art to impart the mechanical strength and dimensional stability of the film as well as to obtain an ease of processibility of the film. As such, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the whisker having an amount instantly claimed since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller***, 105 USPQ 233.

With regard to claim 7, Tsutsumi teaches the whisker having a fiber length L from 5 to 50 microns and a fiber diameter D from 0.05 to 1 microns (column 22, lines 30-33). The L/D ratio meets the specific required by the claims. Such a dimension would have been recognized by one skilled in the art to impart the mechanical strength and dimensional stability of the film as well as to obtain an ease of processibility of the film. As such, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the whisker having an amount instantly claimed since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller***, 105 USPQ 233.

### ***Conclusion***

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426.

The examiner can normally be reached on Tue-Fri, 8:30-6:00 and on alternating Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*Elizabeth M. Cole*  
ELIZABETH M. COLE  
PRIMARY EXAMINER

HV  
February 20, 2003